

IN THE CLAIMS:

1. (Currently Amended) A method for modification of eliminating silicon islands and pinholes in the buried oxide layer of SOI material formed by using SIMOX method containing a top silicon layer having a major surface, a buried oxide layer, and a substrate for eliminating silicon islands and pinholes in the buried oxide layer, comprising the steps of:

(1) implanting silicon ion, germanium ion, inert gas ion or oxygen ion at a dose and an energy into SOI material containing top silicon layer and buried oxide layer at a temperature below 100°C, to form an amorphous region including said buried oxide layer and to keep the an original structure in vicinity of said major surface;

(2) annealing aforesaid SOI material at a temperature in the range from 900°C to 1250°C to restore structure of every layer the top silicon layer and the substrate and to eliminate silicon islands and pinholes in said buried oxide layer.

2. (Original) The method of claim 1 wherein the said energy is in the range from 30keV to 5MeV.

3. (Original) The method of claim 1 wherein the said dose is in the range from $1 \times 10^{13} \text{ cm}^{-2}$ to $5 \times 10^{16} \text{ cm}^{-2}$.